RISC PC

Data Sheet 8 PC Card: RISC OS and Windows

April 1994

The Acorn Risc PC's Open Bus architecture (see separate information sheet) makes it possible to fit a second processor to the computer, sharing all the memory and I/O facilities of the main (ARM) processor. This represents a tremendous cost advantage over traditional second processors mounted on an expansion card, which required memory to be duplicated. The first of these second processors to be offered on the Risc PC will be a 25/33MHz 486SX PC Card which includes DOS. So, for not much more than the price of your Acorn Risc PC, you'll be able to have a 486 PC as well!

With a PC Card fitted, your Acorn Risc PC will behave just like an ordinary 486 PC with Windows and a graphics accelerator card (offering SVGA video), and be able to run most Windows software when you need to.

A special Application Specific IC (ASIC) is being developed, embodying all the speed-dependent PC logic, thereby reducing the load on the host ARM processor. Performance will be further enhanced by an optional 32KB or 128KB secondary cache on the processor chip, which will be managed by a cache controller included in the ASIC.

The ASIC will produce ISA-bus (AT-bus) signals to allow standard PC ISA expansion cards to be used. These will be fitted to the Acorn Risc PC via a special adaptor currently being developed by a third party.

In cases where you are running native RISC OS processes on the ARM as well as using the PC Card, the Task Manager will allow you to set priorities when

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allocating processor bus time between RISC OS and PC processes.

Later versions of the PC Card will offer XGA graphics (1280 x 1024 x 256 colours). Support will be offered for Novell networking, SCO UNIX and other Intel binaries. The 16-bit Risc PC Sound Card currently being developed will provide MPC (Multimedia PC) audio and a subset of the Soundblaster card for PC games.

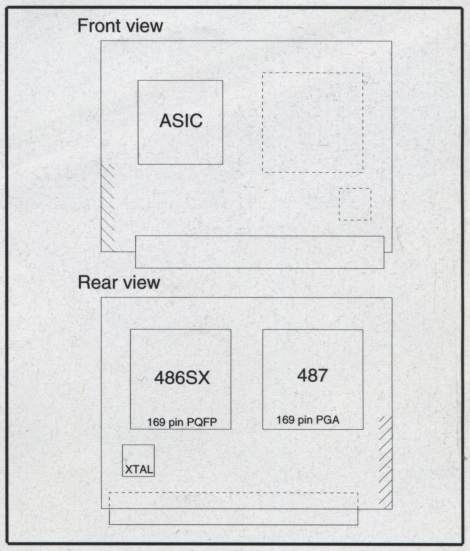
It is expected that even higher performance PC Cards will be introduced, using the 100MHz 486 DX/3 and P24T Pentium processors.

Acorn is developing the 486 Second Processor Card in conjunction with established Acorn peripheral manufacturer Aleph One Ltd and Future Technology Devices International (FTDI). FTDI is designing a custom ASIC for the 486 Second Processor Card; Aleph One is co-ordinating software development and licensing its proven IBM PC-compatible BIOS and Microsoft Windows acceleration software for use with the 486 Second Processor Card.

Here are the key features of the ASIC:

Write-through cache controller	Requires 5 x 8-bit SRAMs externally to operate
2 Interrupt controllers (Intel 8259 equivalent)	
1 Timer (Intel 8254 equivalent)	
ISA-bus controller and interface pins	
Port B logic	
8042 keyboard controller emulation	Command/data mailbox GateA20 FastReset
RTC emulation logic	
DMA controller emulation	Emulation support logic
Aleph One CALLAS interface logic	
ARM interface	Cache fill burst re-sequencing ARM bus arbiter Misaligned data assembly Bus I/O drivers and pins

Diagram of 486SX Card with 487 upgrade socket:



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